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1 Features

- High temperature application: up to 80°C without electric heater
- Three phase large capacity outdoor unit with bottom plate heater
- Operation of unit guaranteed down to -20°C
- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO2 emissions
- Easy to install
- Total solution for year round comfort

2 Specifications

2-1 Nominal Capacity and Nominal Input				ERRQ011AAY1	ERRQ014AAY1	ERRQ016AAY1
For combination indoor units + outdoor units	Indoor Units			EKHBRD011AAY1	EKHBRD014AAY1	EKHBRD016AAY1
Condition 1	Heating capacity	Nominal	kW	11	14	16
	Heating PI	Nominal	kW	3.57	4.66	5.57
	COP	Nominal		3.08	3.00	2.88
Condition 2	Heating capacity	Nominal	kW	11	14	16
	Heating PI	Nominal	kW	2.61	3.55	4.31
	COP	Nominal		4.22	3.94	3.72
Condition 3	Heating capacity	Nominal	kW	11	14	16
	Heating PI	Nominal	kW	4.40	5.65	6.65
	COP	Nominal		2.50	2.48	2.41
Notes				Condition 1: EW: 55; LW: 65; dT: 10; ambient conditions: 7DB/6WB		
				Condition 2: EW: 30; LW: 35; dT: 5; ambient conditions: 7DB/6WB		
				Condition 3: EW: 70; LW: 80; dT: 10; ambient conditions: 7DB/6WB		

2-2 Technical Specifications				ERRQ011AAY1	ERRQ014AAY1	ERRQ016AAY1
Casing	Colour			Daikin white		
	Material			Painted galvanised steel plate		
Dimensions	Unit	Height	mm	1,345		
		Width	mm	900	900	900
		Depth	mm	320	320	320
	Packing	Height	mm	1,524		
		Width	mm	980	980	980
		Depth	mm	420	420	420
Weight	Unit		kg	120	120	120
	Packed Unit		kg	130	130	130
Packing	Material			Wood		
				EPS		
				Cardboard		
	Weight		kg	8	8	8
Heat Exchanger	Dimensions	Length	mm	857	857	857
		Nr of Rows		2	2	2
		Fin Pitch	mm	2	2	2
		Nr of Passes		10	10	10
		Face Area	m²	1.131	1.131	1.131
		Nr of Stages		60	60	60
	Tube type			Hi-XSS		
	Fin	Type		Non-symmetric waffle louvre		
		Treatment		Corrosion resistant		
Fan	Type			Propeller		
	Quantity			2	2	2
	Discharge direction			Horizontal		
	Motor	Quantity		2	2	2
		Model		Brushless DC motor		
		Output	W	70	70	70
		Drive		Direct drive		
Compressor	Quantity			1	1	1
	Motor	Type		Hermetically sealed scroll compressor		
		Starting Method		Direct on line		
Motor	Crankcase Heater	Quantity		1	1	1
		Output	W	33	33	33
Operation Range	Heating	Min	°CWB	-20	-20	-20
		Max	°CWB	20	20	20
	Domestic hot water	Min	°CDB	-20	-20	-20
		Max	°CDB	35	35	35
Sound Level (nominal)	Heating	Sound Power	dBA	68	69	71
		Sound Pressure	dBA	52	53	55

2 Specifications

2-2 Technical Specifications				ERRQ011AAY1	ERRQ014AAY1	ERRQ016AAY1
Refrigerant	Type			R-410A		
	Charge		kg	4.5	4.5	4.5
	Control			Expansion valve(electronic type)		
	Nr of Circuits			1	1	1
Refrigerant Oil	Type			Daphne FVC68D		
	Charged Volume		l	1.5	1.5	1.5
Piping connections	Liquid (OD)	Quantity		1	1	1
		Type		Flare connection		
		Diameter (OD)	mm	9,52		
	Gas	Quantity		1	1	1
		Type		Flare connection		
		Diameter (OD)	mm	15,9		
	Drain	Quantity		3	3	3
		Diameter (OD)	mm	26x3		
	Piping Length	Minimum	m	3	3	3
		Maximum	m	50	50	50
		Equivalent	m	63	63	63
		Chargeless	m	10	10	10
	Additional Refrigerant Charge		kg/m	see installation manual		
	Installation height difference	Maximum	m	30	30	30
	Heat Insulation			Both liquid and gas pipes		
Defrost Method				Reverse cycle		
Defrost Control				Sensor for outdoor heat exchanger temperature		
Capacity Control Method				Inverter controlled		
Safety Devices				High pressure switch		
				Fan motor thermal protector		
				Inverter overload protector		
				PC board fuse		
Standard Accessories	Item			Installation manual		
	Quantity			1	1	1
High pressure side	Design pressure		bar	40	40	40
Notes				See operation range drawing		

2-3 Electrical Specifications				ERRQ011AAY1	ERRQ014AAY1	ERRQ016AAY1
Power Supply	Name			Y1		
	Phase			3~		
	Frequency		Hz	50	50	50
	Voltage		V	380-415		
	Voltage range	Minimum	V	342		
		Maximum	V	440		
Current	Maximum running Current	Heating	A	13,5		
	Recomended fuses		A	16	16	16
Wiring connections	For Power Supply	Quantity		4G		
		Remark		Select diameter and type according to national and local regulations		
	For connection with indoor	Quantity		2	2	2
		Remark		F1+F2		
Power Supply Intake				Both indoor and outdoor unit		

3 Capacity tables

3 - 1 Heating capacity tables

ERRQ-AY1

Capacity table

Peak	Ta[°CDB]	LW [°C]		LW [°C]		LW [°C]		LW [°C]		LW [°C]	
		45		55		65		75		80	
	[°CDB]	HC	PI	HC	PI	HC	PI	HC	PI	HC	PI
EKHBRD 011	-20	11,0	5,07	11,0	5,10	11,0	5,55	11,0	6,04	11,0	6,35
	-15	11,0	4,82	11,0	4,91	11,0	5,39	11,0	5,98	11,0	6,32
	-7	11,0	4,11	11,0	4,24	11,0	4,71	11,0	5,31	11,0	5,67
	-2	11,0	3,66	11,0	3,80	11,0	4,24	11,0	4,81	11,0	5,15
	2	11,0	3,35	11,0	3,50	11,0	3,93	11,0	4,47	11,0	4,80
	7	11,0	3,03	11,0	3,18	11,0	3,57	11,0	4,12	11,0	4,40
	12	11,0	2,75	11,0	2,90	11,0	3,31	11,0	3,82	11,0	4,13
	15	11,0	2,61	11,0	2,77	11,0	3,17	11,0	3,67	11,0	3,96
EKHBRD 014	-20	12,2	5,59	12,1	5,57	12,0	5,86	12,1	6,56	12,0	6,81
	-15	13,5	5,80	13,4	5,84	13,4	6,20	13,5	6,97	13,3	7,29
	-7	14,0	5,41	14,0	5,53	14,0	5,98	14,0	6,76	14,0	7,20
	-2	14,0	4,92	14,0	5,07	14,0	5,50	14,0	6,30	14,0	6,72
	2	14,0	4,50	14,0	4,66	14,0	5,09	14,0	5,87	14,0	6,27
	7	14,0	4,07	14,0	4,23	14,0	4,66	14,0	5,42	14,0	5,65
	12	14,0	3,72	14,0	3,91	14,0	4,34	14,0	5,09	14,0	5,47
	15	14,0	3,55	14,0	3,73	14,0	4,16	14,0	4,89	14,0	5,27
EKHBRD 016	-20	12,6	5,85	12,5	5,80	12,5	6,15	12,1	6,50	11,9	6,76
	-15	14,1	6,14	14,1	6,14	14,0	6,52	13,5	6,92	13,3	7,24
	-7	15,9	6,24	15,9	6,34	15,8	6,78	15,6	7,50	15,3	7,81
	-2	16,0	5,82	16,0	5,97	16,0	6,48	16,0	7,33	15,9	7,69
	2	16,0	5,39	16,0	5,55	16,0	6,08	16,0	6,92	16,0	7,33
	7	16,0	4,83	16,0	5,01	16,0	5,57	16,0	6,35	16,0	6,65
	12	16,0	4,48	16,0	4,66	16,0	5,17	16,0	5,98	16,0	6,40
	15	16,0	4,29	16,0	4,47	16,0	4,99	16,0	5,78	16,0	6,20
		EW = 40°C		EW = 45°C		EW = 55°C		EW = 65°C		EW = 70°C	
		ΔT = 5°C		ΔT = 10°C		ΔT = 10°C		ΔT = 10°C		ΔT = 10°C	

Symbols
HC Heating capacity [kW]
PI Power input [kW]
LW Leaving water temperature
EW Entering water temperature

Conditions
- $\triangle T$ (Leaving water temperature - Entering water temperature)
- *Piping length* R410A Refrigerant piping length = 5m
- No pump power input is included
- if Ta < 3°C and unit has bottom plate heater, 95 W has to be added to PI value
- Ta < 0°C: RH=75%
- Ta > 0°C: RH=85%

flowrate [l/min]	*011*	*014*	*016*
$\triangle$T = 15°C	10,5	13,4	15,3
$\triangle$T = 10°C	15,8	20,1	22,9
$\triangle$T = 5°C	31,5	40,1	45,9

Integrated	Ta[°CDB]	LW [°C]		LW [°C]		LW [°C]		LW [°C]		LW [°C]	
		45		55		65		75		80	
	[°CDB]	HC	PI	HC	PI	HC	PI	HC	PI	HC	PI
EKHBRD 011	-20	9,18	4,31	9,23	4,34	9,30	4,72	9,39	5,18	9,43	5,49
	-15	9,71	4,57	9,77	4,65	9,84	5,11	10,0	5,69	10,0	6,05
	-7	9,54	4,06	9,60	4,19	9,69	4,65	9,86	5,27	9,91	5,65
	-2	9,48	3,59	9,54	3,72	9,62	4,16	9,75	4,74	9,79	5,09
	2	9,47	3,31	9,53	3,45	9,62	3,88	9,76	4,42	9,80	4,75
	7	11,0	3,03	11,0	3,18	11,0	3,57	11,0	4,12	11,0	4,40
	12	11,0	2,75	11,0	2,90	11,0	3,31	11,0	3,82	11,0	4,13
	15	11,0	2,61	11,0	2,77	11,0	3,17	11,0	3,67	11,0	3,96
EKHBRD 014	-20	9,82	4,31	9,92	4,57	10,0	4,86	10,1	5,40	10,1	5,76
	-15	10,9	4,80	10,9	4,90	11,0	5,23	11,1	5,86	11,2	6,24
	-7	11,7	5,00	11,8	5,12	11,9	5,53	12,1	6,31	12,1	6,73
	-2	11,8	4,73	11,8	4,87	12,0	5,31	12,2	6,12	12,2	6,54
	2	11,8	4,41	11,8	4,56	11,9	4,99	12,1	5,78	12,2	6,19
	7	14,0	4,07	14,0	4,23	14,0	4,66	14,0	5,42	14,0	5,65
	12	14,0	3,72	14,0	3,91	14,0	4,34	14,0	5,09	14,0	5,47
	15	14,0	3,55	14,0	3,73	14,0	4,16	14,0	4,89	14,0	5,27
EKHBRD 016	-20	10,2	4,83	10,3	4,83	10,4	5,14	10,1	5,50	10,0	5,71
	-15	11,3	5,05	11,3	5,07	11,4	5,43	11,2	5,84	11,1	6,09
	-7	12,5	5,34	12,6	5,43	12,7	5,88	12,6	6,46	12,6	6,76
	-2	13,0	5,31	13,1	5,44	13,3	5,93	13,3	6,64	13,3	6,99
	2	13,2	5,08	13,3	5,29	13,5	5,80	13,6	6,59	13,6	6,99
	7	16,0	4,83	16,0	5,01	16,0	5,57	16,0	6,35	16,0	6,65
	12	16,0	4,48	16,0	4,66	16,0	5,17	16,0	5,98	16,0	6,40
	15	16,0	4,29	16,0	4,47	16,0	4,99	16,0	5,78	16,0	6,20
		EW = 40°C		EW = 45°C		EW = 55°C		EW = 65°C		EW = 70°C	
		ΔT = 5°C		ΔT = 10°C		ΔT = 10°C		ΔT = 10°C		ΔT = 10°C	

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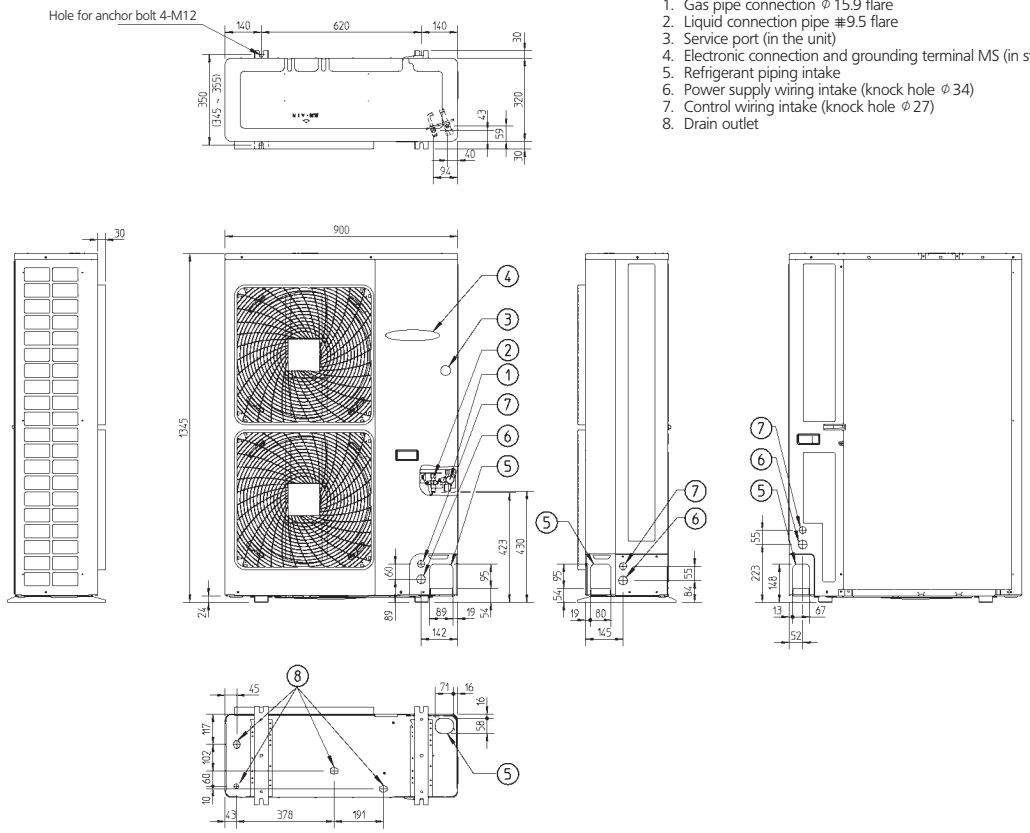
4 Dimensional drawing & centre of gravity

4 - 1 Dimensional drawing

ERRQ011-016AA



1. Gas pipe connection ⌀15.9 flare
2. Liquid connection pipe ⌀9.5 flare
3. Service port (in the unit)
4. Electronic connection and grounding terminal MS (in switch box)
5. Refrigerant piping intake
6. Power supply wiring intake (knock hole ⌀34)
7. Control wiring intake (knock hole ⌀27)
8. Drain outlet

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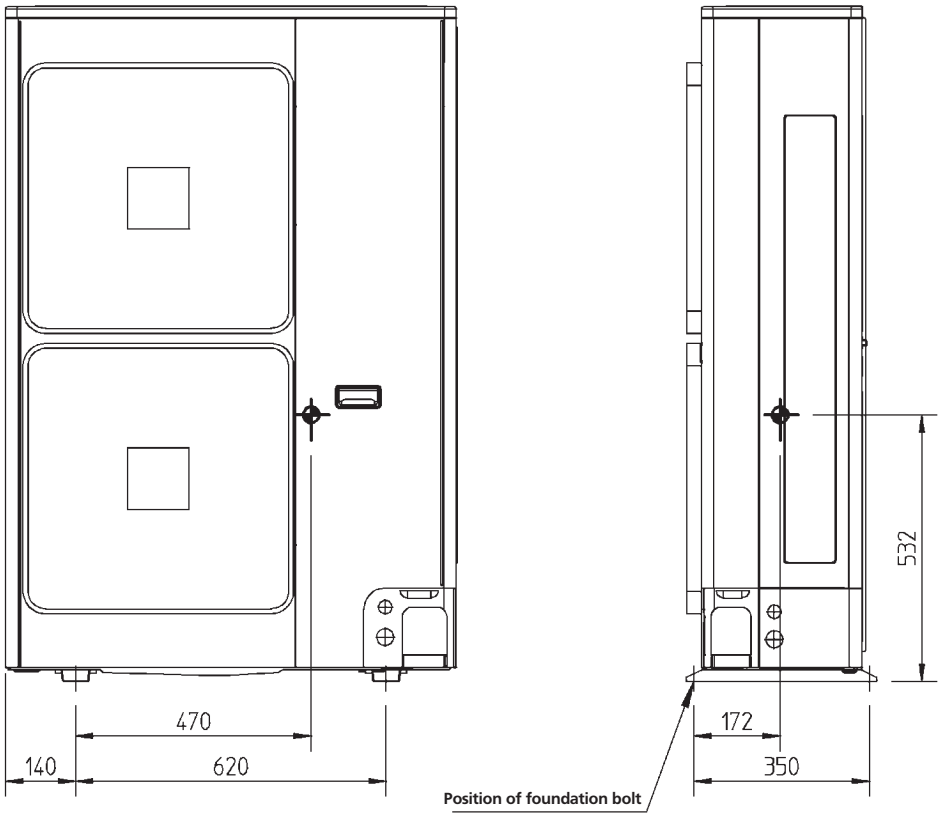
4 Dimensional drawing & centre of gravity

4 - 2 Centre of gravity

ERRQ011-016AAY1



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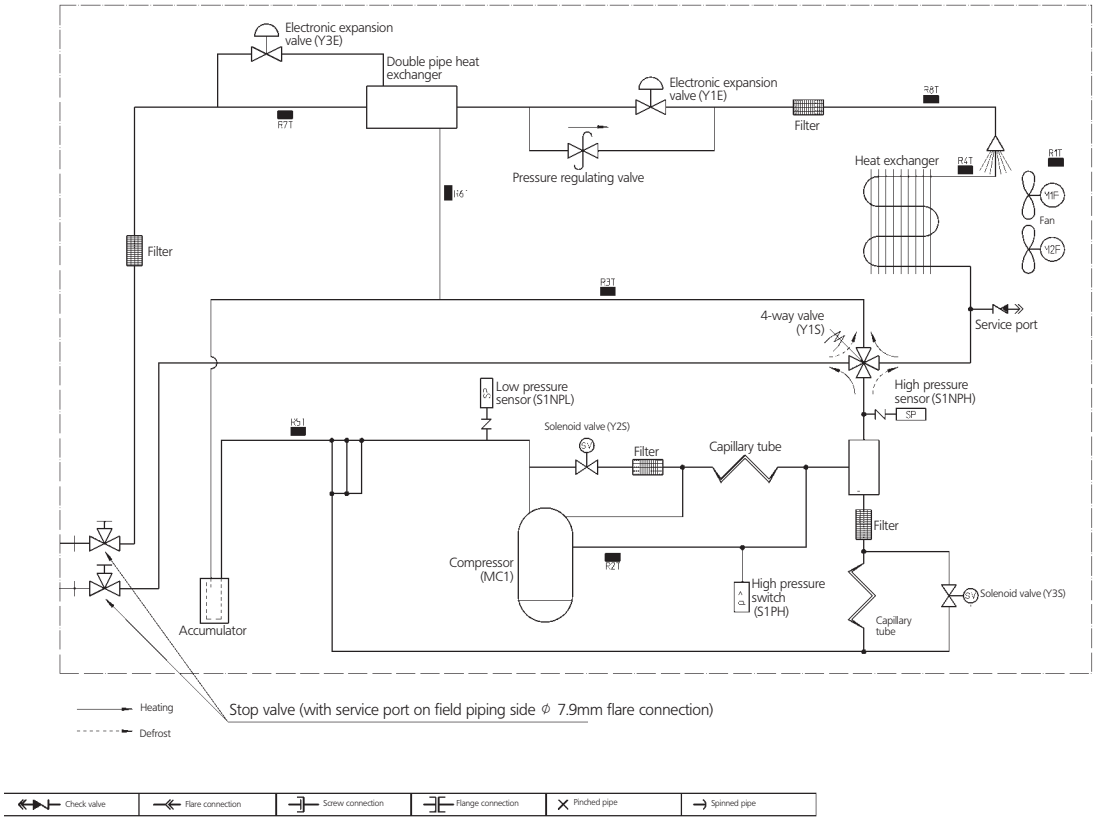
5 Piping diagram

ERRQ011-016AA



R1T: Ambient thermistor
R2T: Discharge thermistor
R3T: Suction thermistor (1)
R4T: Coil thermistor
R5T: Suction thermistor (2)
R6T: Subcool thermistor
R7T: Liquid thermistor (1)
R8T: Liquid thermistor (2)

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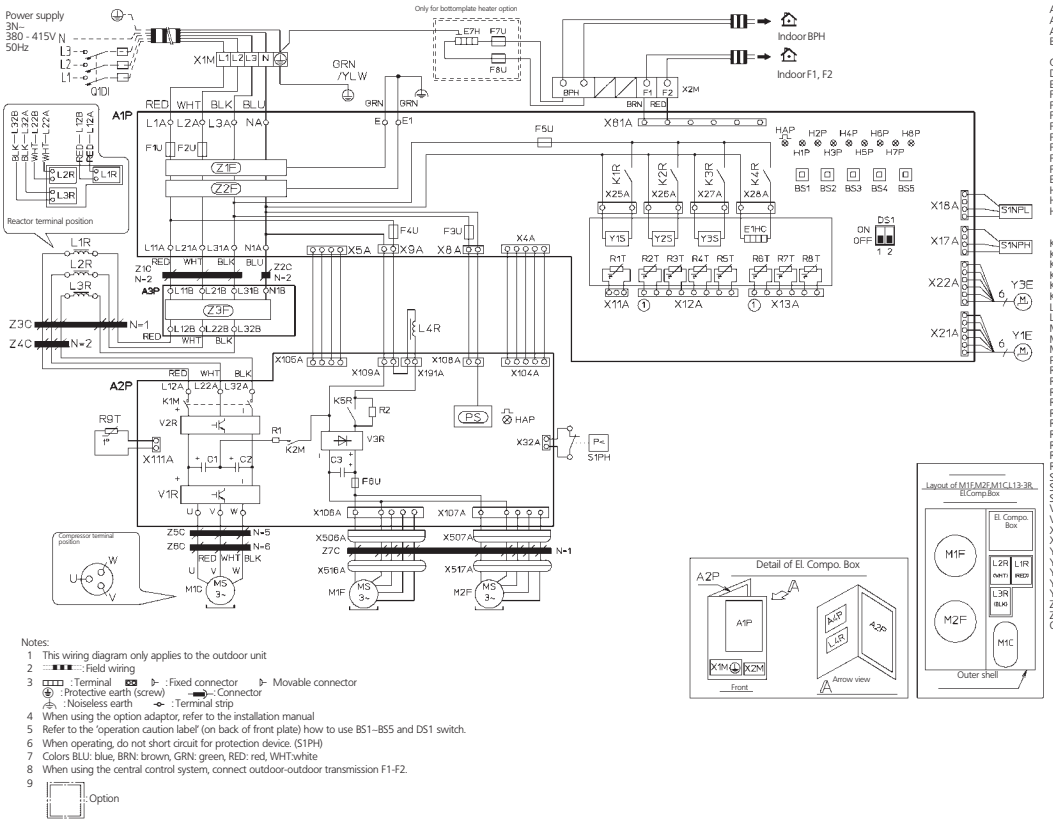
6 Wiring diagram

6 - 1 Wiring diagram

ERRQ-AY1



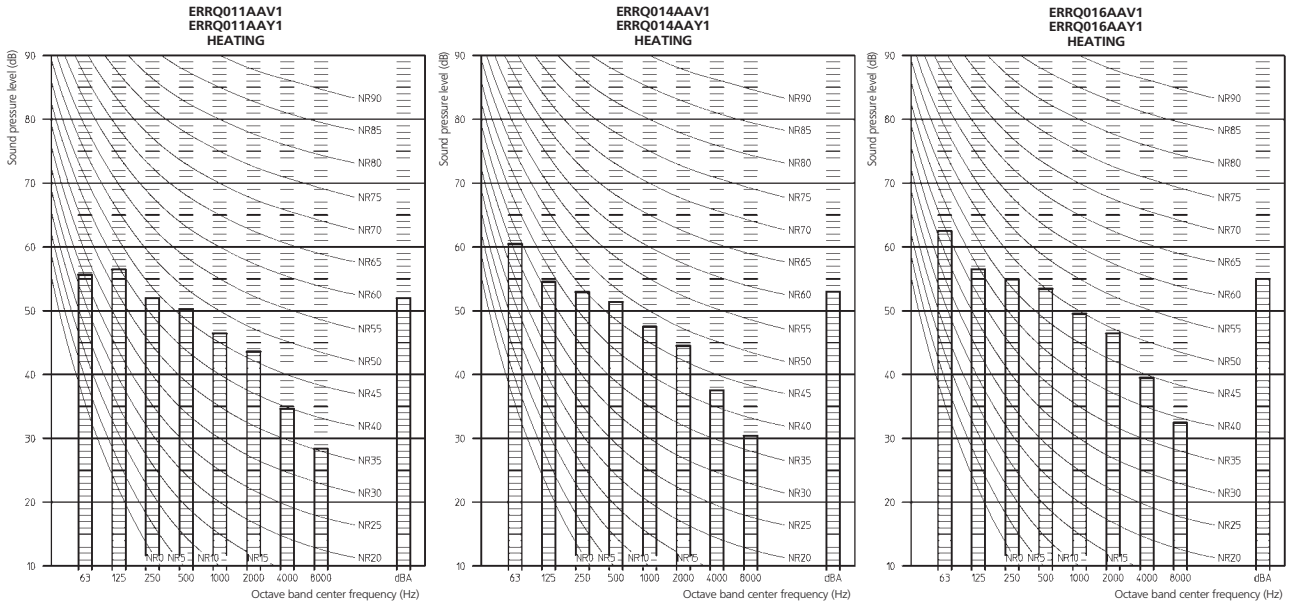
A1P	Printed circuit board
A2P	Printed circuit board (INV)
A3P	Printed circuit board (Noise filter)
BS1–BS5	Push button switch (Mode, set, return, test, reset)
C1–C3	Capacitor
DS1	DIP switch
E1HC	Crankcase heater
F1H	Fuse (A 31.5A 500V)
F2U	Fuse (A 31.5A 500V)
F3U	Fuse (T 6.3A / 250V)
F4U	Fuse (T 6.3A / 250V)
F5U	Fuse (T 6.3A / 250V)
F6U	Fuse (T 5.0A / 250V)
F7U	Fuse (T 1.0A / 250V)
F8U	Fuse (F 1.0A / 250V)
E7H	Bottom plate heater
HAP (A1P)	Pilot lamp (Service monitor-green)
HAP (A2P)	Pilot lamp (Service monitor-green)
H1–8P(A1P)	Pilot lamp (Service monitor-orange) (H2P:Prepare, Test ---------- Flickering Malfunction Detection -- Light up
K1M-K2M	Magnetic contactor
K1R (A1P)	Magnetic relay (Y1S)
K2R (A1P)	Magnetic relay (Y2S)
K3R (A1P)	Magnetic relay (Y3S)
K4R (A1P)	Magnetic relay (E1HC)
K5R (A2P)	Magnetic relay
L1R–L3R	Reactor
L4R	Reactor (For outdoor fan motor)
M1C	Motor (Compressor)
M1F	Motor (Upper fan)
M2F	Motor (Lower fan)
PS	Power supply
R1–R2	Resistor
R1T	Thermistor (Air)
R2T	Thermistor (M1C Discharge)
R3T	Thermistor (Suction 1)
R4T	Thermistor (Subcool)
R5T	Thermistor (Suction 2)
R6T	Thermistor (Coil)
R7T	Thermistor (liquid 1)
R8T	Thermistor (liquid 2)
R9T	Thermistor (Power module)
S1NPH	Pressure sensor(high)
S1NPL	Pressure sensor(low)
S1PH	Pressure switch (high)
V1R–V2R	Power module
V3R	Diode module
X1M	Terminal strip
X2M	Terminal strip (Control)
Y1E	Expansion valve (Main)
Y3E	Expansion valve (Subcool)
Y1S	4 way valve
Y2S	Solenoid valve (hot gas)
Y3S	Solenoid valve (U/L circuit)
Z1C–7C	Noise filter
Z1F–3F	Noise filter
Q1DI	Field earth leakage breaker(300mA)

Notes:
1 This wiring diagram only applies to the outdoor unit
2 ---: Field wiring
3 : Terminal : Fixed connector : Movable connector
: Protective earth (screw) : Connector
: Noiseless earth : Terminal strip
4 When using the option adaptor, refer to the installation manual
5 Refer to the "operation caution label" (on back of front plate) how to use BS1–BS5 and DS1 switch.
6 When operating, do not short circuit for protection device. (S1PH)
7 Colors BLU: blue, BRN: brown, GRN: green, RED: red, WHT:white
8 When using the central control system, connect outdoor-outdoor transmission F1-F2.
9 : Option

2TW58746-1C

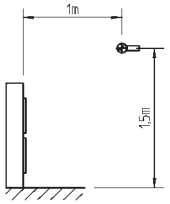
7 Sound data

7 - 1 Sound pressure spectrum



Notes:

1 Data is valid at free field condition (measured in a semi-anachoic room)
2 dBA = A-weighted sound power level (A-scale according to IEC)
3 Reference acoustic pressure 0dB = 20µPa
4 If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.

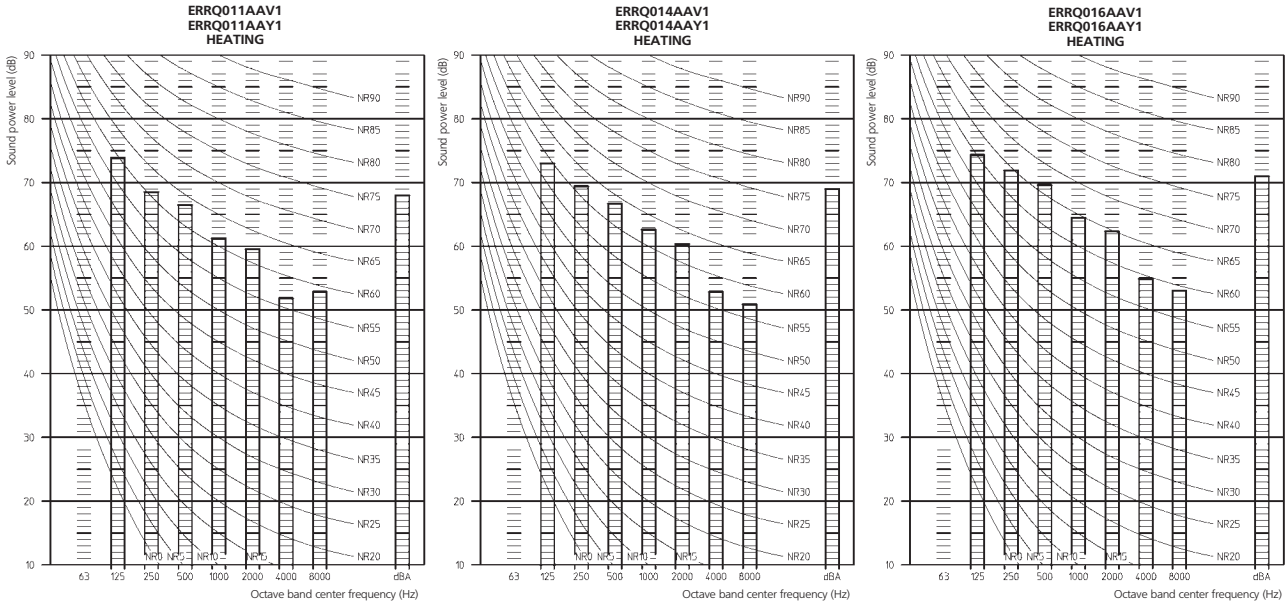


Measuring location (discharge side)

3TW58747-1

7 Sound data

7 - 2 Sound power spectrum



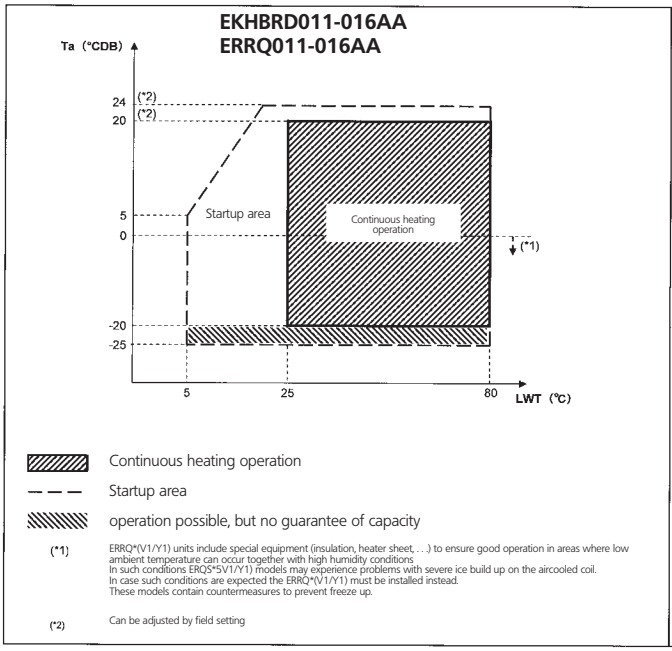
Notes:

1 dBA = A-weighted sound power level (A-scale according to IEC)
2 Reference acoustic pressure 0dB = 20µPa
3 Measured according to ISO 3744

3TW58747-2

8 Operation range

Space heating mode



Continuous heating operation

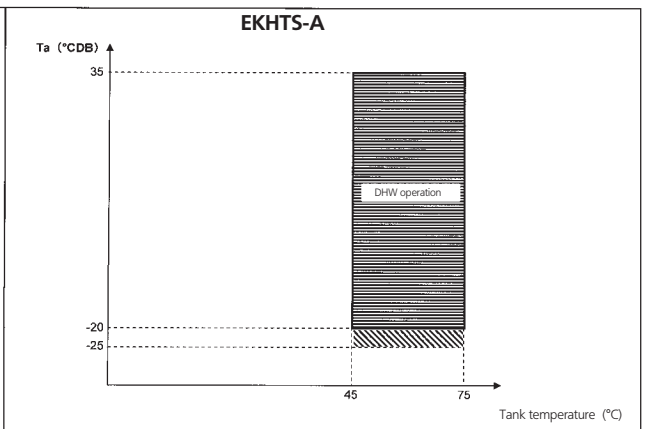
Startup area

operation possible, but no guarantee of capacity

(*1) ERRQ*(V1/Y1) units include special equipment (insulation, heater sheet, ...) to ensure good operation in areas where low ambient temperature can occur together with high humidity conditions
In such conditions ERQS*5V1/Y1) models may experience problems with severe ice build up on the aircooled coil.
In case such conditions are expected the ERRQ*(V1/Y1) must be installed instead.
These models contain countermeasures to prevent freeze up.

(*2) Can be adjusted by field setting

Domestic hot water mode



Domestic hot water operation

operation possible, but no guarantee of capacity

3TW58843-1B